



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/691,150

10/22/2003

Huan-sheng Hwang

9314-49

6598

54414

7590

05/16/2007

MYERS BIGEL SIBLEY & SAJOVEC, P.A.

P.O. BOX 37428

RALEIGH, NC 27627

EXAMINER

A, MINH D

ART UNIT

PAPER NUMBER

2821

MAIL DATE

DELIVERY MODE

05/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/691,150	Applicant(s) HWANG ET AL.	
	Examiner Minh D. A	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 19-31, 35-36 and 39-43 is/are rejected.
- 7) ☒ Claim(s) 14-18 and 32-34, 37-38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's communication filed on 2/26/07 has been carefully considered by the examiner. The arguments advanced therein are persuasive with respect to the rejections of record, and those rejections are accordingly withdrawn. In view of a further search, however, a new rejection is set forth below. This action is not made final.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7, 9-11, 20-26, 28-29, 35-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al (Patent No. US 6,990,363).

Regarding claim 1, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising a ground plane (ground pattern (2)); a conductor loop (the outer one of the ground pattern(2) serves as the conductive ground) overlying the ground plane (2); and wherein the monopole (whip or single antenna (3)) and the conductor loop (the outer ground pattern serves as conductive ground) are configured to be coupled to a common feed-point (4). Col.5, lines 33-67 to col.10, lines 1-57.

Regarding claims 2, and 21, Ito discloses in figures 5-8, wireless

Art Unit: 2821

communication device with an improved antenna structure, comprising wherein the conductor loop has a reflective feature therein since the conductor loop is conductive or current can be drive it. Col.5, lines 33-67 to col.8, lines 1-57.

Regarding claims 3, 22, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising the reflective feature having a corner. Col.5, lines 33-67 to col.7, lines 1-67.

Regarding claims 4, 23, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising wherein the conductor loop is rectangular.

Regarding claims 5, 24, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising wherein the conductor loop is substantially parallel to the ground plane. Col.5, lines 33-67 to col.6, lines 1-67.

Regarding claims 6, 25, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising wherein the monopole is substantially parallel to the conductor loop. Col.5, lines 33-67 to col.6, lines 1-67.

Regarding claims 7, 26, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising wherein the monopole is coupled to the conductor loop at a comer thereof. Col.5, lines 33-67 to col.7, lines 1-67

Regarding claims 9, 28, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising wherein the conductor loop is positioned adjacent an edge of the ground plane, and wherein the monopole extends off the edge of the ground plane. Col.5, lines 33-67 to col. lines 1-67

Regarding claims 10-11, 29, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising wherein the ground plane comprises a conductive layer on a printed circuit substrate. Col.5, lines 33-67 to col.8, lines 1-67.

Regarding claim 20, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising a frame, a radio communication (see figure 1, a ground plane (ground pattern (2)) disposed on the substrate supported by the frame; a conductor loop (the outer one of the ground pattern(2) serves as the conductive ground) overlying the ground plane (2); and wherein the monopole (whip or single antenna (3)) and the conductor loop (the outer ground pattern serves as conductive ground) are configured to be coupled to a common feed-point (4). Col.5, lines 33-67 to col.10, lines 1-57.

Regarding claims 35-36, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising the frame comprises a clamshell housing having first and second rotatably attached portions, wherein the ground plane comprises substrate comprises electrically coupled first and second portions disposed in respective ones of the first and second housing portions.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious

Art Unit: 2821

at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8, 12-13, 19, 27 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Ito et al (Patent No. US 6,990,363).

Regarding claims 8 and 13, Ito discloses the claimed invention except for a frequency range from about 1.5 GHz to about 2.5 GHz. However, this difference is not of patentable merit, since a range from difference frequency is operated in the same manner, provide a high frequency for mobile or cellular phone. Therefore, to employ a frequency range from about 1.5 GHz to about 2.5 GHz of antenna of Ito, upon a particular application or frequency of use, would have been deemed obvious to a person skilled in the art.

Regarding claims 12, 19 and 30, Ito essentially discloses the claimed invention but does not explicitly disclose that, the helical element arranged coaxial.

It would have been an obvious matter of design choice to employ Ito in any desired interest environment, or difference device in order to maximize the usage of his invention, since applicant does not disclose that, all of these limitations can solve any stated problem and for any particular purpose. Therefore, it appears that, the invention would not provide any improvement but merely apply the invention in different presentation.

Regarding claims 27 and 31, Ito discloses the claimed invention except for a frequency range from about 1.5 GHz to about 2.5 GHz. However, this difference is not of patentable merit, since a range from difference frequency is operated in the same

Art Unit: 2821

manner, provide a high frequency for mobile or cellular phone. Therefore, to employ a frequency range from about 1.5 GHz to about 2.5 GHz of antenna of Ito upon a particular application or frequency of use, would have been deemed obvious to a person skilled in the art.

5. Claims 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Ito et al (Patent No. US 6,990,363) in view of Back et al (Patent No: US 6, 774, 856).

Regarding claim 39, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising a frame, a radio communication (see figure 1; a ground plane (ground pattern (2)) disposed on the substrate supported by the frame; a conductor loop (the outer one of the ground pattern(2) serves as the conductive ground) overlying the ground plane (2); and wherein the monopole (whip or single antenna (3)) and the conductor loop (the outer ground pattern serves as conductive ground) are configured to be coupled to a common feed-point (4). Col.5, lines 33-67 to col.10, lines 1-57.

However, Ito does not disclose the helical element.

Back discloses, in figure 1, the antenna is helical antenna.

It would have been an obvious to one of ordinary skill in the art at the time the invention was made to employ the helical antenna as suggested by Back in the antenna of Ito in order to create transmit and receive signal.

Regarding claim 40, Ito discloses in figures 5-8, wireless communication device

Art Unit: 2821

with an improved antenna structure, comprising wherein the conductor loop has a reflective feature therein since the conductor loop is conductive or current can be drive it. Col.5, lines 33-67 to col.8, lines 1-57.

Regarding claims 41-42, Ito discloses in figures 5-8, wireless communication device with an improved antenna structure, comprising the reflective feature having a corner. Col.5, lines 33-67 to col.7, lines 1-67.

Regarding claim 43, Ito discloses the claimed invention except for a frequency range from about 1.5 GHz to about 2.5 GHz. However, this difference is not of patentable merit, since a range from difference frequency is operated in the same manner, provide a high frequency for mobile or cellular phone. Therefore, to employ a frequency range from about 1.5 GHz to about 2.5 GHz of antenna of Ito upon a particular application or frequency of use, would have been deemed obvious to a person skilled in the art.

Allowable Subject Matter

7. Claims 14-18, 32-34, 37-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art does not teach that, wherein the monopole comprises a retractable monopole configured to extend and retract through the helical element and configured to connect to the common feed-point in an extended position recited in dependent claim 14 and 37.

Prior art does not teach that, the ground plane comprises a rectangular ground plane; wherein the conductor loop comprises a rectangular conductor loop having a side substantially aligned with a shorter side of the rectangular ground plane; wherein the monopole comprises a substantially linear conductor that extends substantially perpendicular to the edge of the ground plane from a coupling point at a corner of the rectangular conductor loop at the edge of the ground plane recited in dependent claim 16 and 32.

Citation of relevant prior art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Woo (US 6,317,086) and Bowers et al (US 5,914,692) are cited to show a multiple loop antenna.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Dieu A whose telephone number is (571) 272-1817. The examiner can normally be reached on M-F (5:30 AM-2: 45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Owens Douglas W can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2821

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner

Minh A

Art Unit 2821

5/5/07

Shih-Chao Chen
SHIH-CHAO CHEN
PRIMARY EXAMINER